

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed September 20, 2005 ("Office Action"). At the time of the Office Action, Claims 1-23 were pending in the application and the Examiner rejects Claims 1-23. The Examiner objects to the drawings filed on December 31, 2001. Applicants respectfully request reconsideration and favorable action in this case.

Objections to the Drawings

The Examiner objects to the drawings "as failing to comply with 37 C.F.R. 1.84(p)(4) because referenced character "174B" has been used to designate both "guide curve 174B" and "section curve 174A" in Figure 4B surface elements 170 and 240." (Office Action, page 2). Applicants have included a proposed drawing correction of Figure 4B for the Examiner's approval. The proposed drawing correction has been labeled as a "Replacement Sheet" pursuant to 37 C.F.R. 1.121(d). As revised, Figure 4B illustrates surface elements 170 and 240 as each including both a section curve 174A and a section curve 174B. Applicants respectfully request that the objection to the drawings be withdrawn.

Section 102 Rejections

The Examiner rejects Claim 1 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,345,546 issued to Harada et al. ("*Harada*"). Because *Harada* does not disclose, teach, or suggest each and every feature of Applicant's Claim 1, Applicants respectfully traverse the rejection of Claim 1 and requests reconsideration and favorable action.

Independent Claim 1 recites:

A method for interfacing with a surface within a computer-aided drawing environment, comprising:

determining that a plurality of curves operable to define the surface constitute a $P \times 1$ surface condition, a $P \times 1$ surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero;

in response to determining that a plurality of curves constitute a $P \times 1$ surface condition, converting the $P \times 1$ surface condition into an $N \times M$ surface condition, an $N \times M$ surface condition being defined by a number of third curves equal to N and

a number of fourth curves equal to M , wherein N and M are integers greater than one;
constructing an $N \times M$ surface under the $N \times M$ surface condition; and
modifying the $N \times M$ surface to edit a drawing.

Whether considered alone or in combination with any other cited reference, *Harada* does not disclose, either expressly or inherently, each and every element of independent Claim 1.

For example, Applicants respectfully submit that *Harada* does not disclose, teach, or suggest “determining that a plurality of curves operable to define the surface constitute a $P \times 1$ surface condition, a $P \times 1$ surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero,” as recited in Applicant’s Claim 1. In the Office Action, the Examiner identifies the boundary curve of Figure 3A of *Harada* as being analogous to Applicant’s “second curve” and “the curves that are connected at the two ends of the boundary curve as being analogous to Applicant’s first curves.” (Office Action, pages 2-3). *Harada* discloses “a method for generating a fillet surface which smoothly connects two surfaces to each other.” (Column 2, lines 31-36). Specifically, the method includes inter alia “designating a spine curve near a boundary between the surfaces” and “generating a Gregory patch which approximately and parametrically represents the filler surface.” (Column 21, lines 34-46). The spine curve R (or boundary curve as identified by the Examiner) “is defined with respect to the two surfaces S_a and S_b shown in FIG. 3A.” (Column 5, lines 56-57). Thus, the spine curve forms the boundary between two separate surfaces S_a and S_b . *Harada* further discloses that “[t]he two surfaces shown in FIGS. 3A to 3F are respectively defined by parametric surfaces $S_a(u, v)$ and $S_b(u, v)$ having two parameters u and v ($0 \leq u, v \leq 0$).” (Column 5, lines 40-43). Thus, *Harada* only discloses that the two surfaces are each defined by two parameters that are greater than zero. There is no disclosure in *Harada*, however, that either of the parameters, u or v , for either surface S_a or S_b is equal to one or of making a determination as to this fact. As a result, there is no disclosure of “determining that a plurality of curves operable to define the surface constitute a $P \times 1$ surface condition, a $P \times 1$ surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero,” as recited in Applicant’s Claim 1.

As there is not disclosure in *Harada* of Applicant's step of "determining that a plurality of curves . . . constitute a $P \times 1$ surface condition" there likewise can be no disclosure in *Harada* of "in response to determining that a plurality of curves constitute a $P \times 1$ surface condition, converting the $P \times 1$ surface condition into an $N \times M$ surface condition," as recited in Applicant's Claim 1. Applicant's claim language clearly recites determining the existence of a condition (namely, that a plurality of curves constitute a $P \times 1$ surface condition) and performing an additional step in response to determining the presence of the condition (namely, converting the $P \times 1$ surface condition into an $N \times M$ surface condition). Since *Harada* does not disclose, teach, or suggest a determination as to the existence of the condition, *Harada* necessarily cannot be said to disclose, teach, or suggest performing the "converting" step in response to making the determination that a $P \times 1$ surface condition exists. The recited features and operations are absent from *Harada*.

Furthermore, Applicants submit that *Harada* does not disclose, teach, or suggest, in any manner, "converting the $P \times 1$ surface condition into an $N \times M$ surface condition," as recited in Claim 1. To the contrary, and as discussed above, *Harada* is directed to a "method and apparatus for generating a fillet surface between two surfaces." (Column 1, lines 6-8). Specifically, the "fillet surface which smoothly connects two surfaces to each other comprises the steps of designating a spine curve near a boundary between the two surfaces, placing a predetermined curve on a normal plane of the spine curve at an arbitrary point on the spine curve so that the predetermined curve can be in contact with the two surfaces, sliding the predetermined curve, while being in contact with the two surfaces, in order to generate trajectories of two tangent points between the predetermined curve and the two surfaces, the fillet surface being defined by a trajectory of the predetermined curve and the trajectories of the two tangent points, and generating a parametric surface which approximately and parametrically represents the fillet surface, by using the trajectories of the two tangent points and the predetermined curve." (Column 2, lines 14-30). Thus, *Harada* merely discloses generating a third surface to connect to surfaces. Whether or not *Harada* discloses that the fillet surface may have an $N \times M$ surface condition (which Applicants do not acknowledge), *Harada* cannot be said to disclose that either of the surfaces S_a and S_b are converted into the fillet surface. As a result, *Harada* does not disclose, teach, or suggest

“converting the $P \times 1$ surface condition into an $N \times M$ surface condition,” as recited in Claim 1.

For at least these reasons, Applicants respectfully request reconsideration and allowance of Claim 1, together with Claims 2-6 that depend from Claim 1.

Section 103 Rejections

The Examiner rejects Claims 2-23 under 35 U.S.C. § 103(a) as being unpatentable over *Harada* in view of U.S. Patent No. 5,619,625 issued to Konno et al. (“*Konno*”).

A. The Claims are Allowable over the cited References

Because the proposed *Harada-Konno* combination does not disclose, teach, or suggest each and every feature of Applicant’s Claims 2-23, Applicants respectfully traverse the rejection of Claims 2-23 and requests reconsideration and favorable action.

Dependent Claims 2-6 depend from independent Claim 1. These dependent claims are not rendered obvious by the *Harada-Konno* combination proposed by the Examiner because they include the limitations of their respective base claim, which Applicants have shown above to be allowable. Additionally, dependent Claims 2-6, recite features and operations that further distinguish Claims 2-6 from *Harada* and *Konno*. For example, dependent Claim 2 recites that “converting the $P \times 1$ surface condition into an $N \times M$ surface condition comprises generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of a surface having the $P \times 1$ surface condition and compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition.” In the Office Action, the Examiner acknowledges that *Harada* does not disclose the recited features and operations; rather, the Examiner relies upon the disclosure of *Konno*. (Office Action, page 4). Applicants respectfully submit, however, that *Konno* also does not disclose the features and operations recited in dependent Claim 2.

In fact, *Konno* discloses a surface generation method “which smoothly joins two surface patches sharing a common boundary curve.” (Column 2, lines 32-35). Thus, for

reasons similar to those discussed above with regard to Claim 1 and *Harada*, Applicants respectfully submit that *Konno* does not disclose, teach, or suggest “converting the $P \times 1$ surface condition into an $N \times M$ surface condition . . .” To the contrary, *Konno* specifically discloses “the use of an interpolation method which applies the general boundary Gregory patch, and which generates a free-form surface which is joined smoothly to all the adjacent surfaces by creating the interior control points **for smoothly joining the free-form surface with the adjacent surfaces along all the boundary curves** and by generating the generally boundary Gregory patch based on those interior control points.” (Column 2, lines 35-42). Accordingly, the recited features and operations are absent from *Harada*.

Furthermore, there is also no disclosure in *Konno* of “at least one auxiliary curve that is . . . compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition,” as recited in Claim 2. Although *Konno* discloses “checking G1 continuity at the end points of the boundary curve” and “using the condition of continuity [in calculating the cross boundary derivatives]” (Column 5, lines 23-26 and 41-44), there is no indication in *Konno* that the disclosed “condition of continuity” is analogous to Applicant’s recited “auxiliary curve that is . . . compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition.” In fact, there is no disclosure in *Konno* at all of the meaning of G1 continuity as applied to the end points of the boundary curve. Accordingly, Applicants respectfully submit that to the extent that *Konno* discloses “converting the $P \times 1$ surface condition into an $N \times M$ surface condition [by] generating at least on auxiliary curve” as recited in Claim 2 (which Applicants dispute above), there is no further disclosure in *Konno* of “generating at least one auxiliary curve that is . . . compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition,” as recited in Claim 2.

For at least these reasons, Applicants respectfully request reconsideration and allowance of dependent Claim 2.

Independent Claims 7, 12, and 18 include certain features and operations that are analogous to the features and operations recited in Claims 1 and 2, discussed above. For example, Claim 7 recites “determining that a plurality of curves operable to define the surface

constitute a $P \times 1$ surface condition . . . [and] in response to determining that a plurality of curves constitute a $P \times 1$ surface condition, converting the $P \times 1$ surface condition into a $N \times M$ surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of a surface having the $P \times 1$ surface condition and compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition.” As a further example, Claim 12 recites a software program operable to “determine that a plurality of curves operable to define the surface constitute a $P \times 1$ surface condition . . . [and] in response . . . convert the $P \times 1$ surface condition into an $N \times M$ surface condition.” Claim 18 recites a computer readable medium comprising a software program operable to “determine that a plurality of curves operable to define the surface constitute a $P \times 1$ surface condition . . . [and] in response . . . convert the $P \times 1$ surface condition into an $N \times M$ surface condition.” “a patient drape configured to shield a portion of a patient’s body during a medical procedure” and “a fluid collection pouch coupled to the patient drape and having an open end.” Accordingly, for reasons analogous to those discussed above with regard to Claims 1 and 2, Applicants submit that the proposed *Harada-Konno* combination does not disclose, teach, or suggest the features of independent Claims 7, 12, and 18.

For at least these reasons, Applicants respectfully request reconsideration and allowance of independent Claims 7, 12, and 18, together with Claims 8-13, 14-17, and 19-23 that depend from Claims 7, 12, and 18, respectively.

B. The Proposed *Harada-Konno* Combination is Improper

Furthermore, Applicants respectfully submit that the Examiner has not provided the requisite teaching, suggestion, or motivation, either in the cited references or in the knowledge generally available to one of ordinary skill in the art at the time of Applicant’s invention to modify or combine *Harada* with the disclosure of *Konno* in the manner the Examiner proposes. Applicant’s claims are allowable for at least this additional reason.

1. The Legal Standard

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. Accordingly, even if all elements of a claim are disclosed in various

prior art references, which is certainly not the case here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention. Applicants respectfully submit that the Examiner has merely pieced together disjointed portions of references, with the benefit of hindsight using Applicant's claims as a blueprint, in an attempt to reconstruct Applicant's claims.

The governing Federal Circuit case law makes this strict legal standard clear.¹ According to the Federal Circuit, "a showing of a suggestion, teaching, or motivation to combine or modify prior art references is an essential component of an obviousness holding." *In re Sang-Su Lee*, 277 F.3d 1338, 1343, 61 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 2002) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000)). "Evidence of a suggestion, teaching, or motivation . . . may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, the nature of the problem to be solved." *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). However, the "range of sources available . . . does not diminish the requirement for actual evidence." *Id.* ***Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so."*** *In re Mills*, 916 F.2d at 682, 16 U.S.P.Q.2d at 1432 (emphasis added). *See also In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) (***holding a prima facie case of obviousness not made where the combination of the references taught every element of the claimed invention but did not provide a motivation to combine***); *In Re Jones*, 958 F.2d 347, 351, 21 U.S.P.Q.2d 1941, 1944 (Fed. Cir. 1992) ("Conspicuously missing from this record is any evidence, other than the PTO's speculation (if that can be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modification of the prior art salts necessary to arrive at" the claimed invention.). Even a determination that it would have been obvious to one of ordinary skill in the art at the time of the invention to try

¹ Note M.P.E.P. 2145 X.C. ("The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references.").

the proposed modification or combination is not sufficient to establish a *prima facie* case of obviousness. *See In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1599 (Fed. Cir. 1988).

In addition, the M.P.E.P. and the Federal Circuit repeatedly warn against using an applicant's disclosure as a blueprint to reconstruct the claimed invention. For example, the M.P.E.P. states, “*The tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.*” M.P.E.P. § 2142 (emphasis added). The governing Federal Circuit cases are equally clear. “A critical step in analyzing the patentability of claims pursuant to [35 U.S.C. § 103] is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. . . . Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one ‘to fall victim to the insidious effect of a hindsight syndrome *wherein that which only the invention taught is used against its teacher.*’” *In re Kotzab*, 217 F.3d 1365, 1369, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (citations omitted; emphasis added). In *In re Kotzab*, the court noted that to prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. *See id.* *See also, e.g., Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 U.S.P.Q.2d 1788, 1792 (Fed. Cir. 1988). Similarly, in *In re Dembiczak*, the Federal Circuit reversed a finding of obviousness by the Board, *explaining that the required evidence of such a teaching, suggestion, or motivation is essential to avoid impermissible hindsight reconstruction of an applicant's invention:*

Our case law makes clear that the best defense against the subtle but powerful attraction of hind-sight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references*. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.

175 F.3d at 999, 50 U.S.P.Q.2d at 1617 (emphasis added) (citations omitted; emphasis added).

2. The Analysis

With regard to dependent Claim 2 (and applicable to independent Claims 7, 12, and 18), the Examiner states that “it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of *Harada et al.* to include generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of a surface having the P x 1 surface condition and compatible with the number of first curves and the only one second curve . . . thereby providing a free-form surface generation method.” (Office Action, pages 4-5). As motivation for doing so, the Examiner refers to several advantages purported to be provided by the free-form surface generation method of *Konno*. (Office Action, page 5). Thus, it appears that the Examiner has merely proposed alleged advantages for combining *Harada* with *Konno* (advantages which Applicants do not admit could even be achieved by combining these references in the manner the Examiner proposes). The Examiner has not pointed to any portions of the cited references, however, that would teach, suggest, or motivate one of ordinary skill in the art at the time of invention to incorporate the calculation of cross boundary derivatives on all the boundary curves forming a face as disclosed in *Konno* with the method for generating a fillet surface between two surfaces as disclosed in *Harada*. In other words, the alleged advantages of the systems, as provided by the Examiner, do not provide an explanation as to: (1) why it would have been obvious to one of ordinary skill in the art at the time of Applicant’s invention (*without using Applicant’s claims as a guide*) to modify the particular techniques disclosed in *Harada* with the cited disclosure in *Konno*; (2) how one of ordinary skill in the art at the time of Applicant’s invention would have actually done so; and (3) how doing so would purportedly meet the limitations of Applicant’s claims in a successful manner. Indeed, if it were sufficient for Examiners to merely point to a purported advantage of one reference and conclude that it would have been obvious to combine or modify that reference with other references simply based on that advantage (which, as should be evident from the case law discussed above, it certainly is not), then virtually any two or more references would be combinable just based on the fact the one reference states an advantage of its system. Of course, as the Federal Circuit has made clear and as discussed above, that is not the law.

Accordingly, Applicants respectfully submit that the Examiner's conclusions set forth in the Office Action do not meet the requirements set forth in the M.P.E.P. and the governing Federal Circuit case law for demonstrating a *prima facie* case of obviousness. The Examiner's attempt to modify or combine *Harada* with *Konno* appears to constitute the type of impermissible hindsight reconstruction of Applicant's claims, using Applicant's claims as a blueprint, that is specifically prohibited by the M.P.E.P. and governing Federal Circuit cases. Applicants respectfully submit that the rejection must therefore be withdrawn.

For at least these reasons, Applicants respectfully request that the rejection of the Claims 2-23 be withdrawn and the claims allowed.

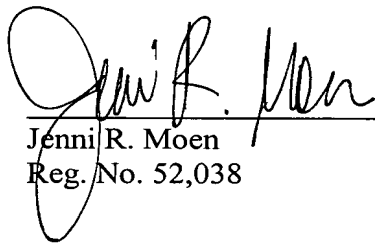
CONCLUSION

Applicants have made an earnest attempt to place this case in condition for immediate allowance. For the foregoing reasons and for other reasons clear and apparent, Applicants respectfully request reconsideration and allowance of the pending claims.

Although Applicants believe that no fees are due, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of BAKER BOTTS L.L.P.

If there are matters that can be discussed by telephone to advance prosecution of this application, Applicants invite the Examiner to contact its attorney at (214) 953-6809.

Respectfully submitted,
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Attorneys for Applicant

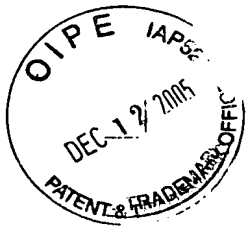


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FIG. 4B

